UNITED STATES PATENT OFFICE.

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REMOVING ENAMEL FROM ENAMELED METAL ARTICLES.

1,272,917. Specification of Letters Patent. Patented July 16, 1918.

No Drawing. Application filed September 5, 1917. Serial No. 189,735.

To all whom it may concern:

Be it known that I, RAYMOND D. COOKE, a citizen of the United States, and a resident of Terre Haute, in the county of Vigo and State of Indiana, have invented a new and useful Improvement in the Art of Removing Enamel from Enameled Metal Articles, of which the following is a specification.

In the practice of the art of enameling metals there is always a certain amount of loss due to mechanical injury to the enamel or to other causes which render an article unfit for profitable disposal on the market. It is, therefore, highly desirable that a process be found which will remove vitreous enamel cheaply and without undue action on the metal, leaving the metal article in a condition for subsequent enameling or for any other purpose to which it may be desired to put it.

My invention consists essentially in treating the article first with an acid solution which causes the enamel to become porous, and which is followed by a short immersion in an alkaline bath which loosens and softens the enamel to such an extent that it falls off or may be brushed off.

In the preferred process I use an acid bath of 10% hydrochloric acid maintained at a temperature of about 160° F. by any suitable means, in which the enameled article is allowed to remain about fifteen minutes. After removing from this bath the article is washed in water and placed in a 25% solution of sodium hydroxid, heated to about 160° F. until the enamel has been dissolved, which may be ten or fifteen minutes. The article is then washed and dried. In case the enamel is very heavy or consists of more than one coating, the removal may not have been complete, in which case the same procedure is followed a second or third time or until the removal is complete. Two to five minutes treatment in the acid have been found to be best for these second and third treatments. Instead of hydrochloric acid other mineral acids may be employed, and in like manner other alkaline baths may be substituted for the sodium hydroxid. The strengths of the solutions may also be varied, and the baths may be either hot or cold.

I am aware that patents have been granted to Gustav Spitz, Nos. 1,055,678 and 1,065,401, on March 11, 1913 and June 24, 1913, respectively, and to George W. Goetz, No. 528,156, on October 30, 1894, for the removal of vitreous enamels, but these processes depend entirely on the use of caustic or other alkali at relatively high temperatures, whereas my invention makes use of alkali only in a secondary way, the enamel first being softened and rendered porous by the acid. My process is, therefore, fundamentally new and does not make use of the principles involved in the above cited patents. It is also more economical, since the amount of alkali consumed is small, and the process can be carried on rapidly on a large scale with the use of comparatively little heat, power or labor.

What I claim as new is:

1. The herein described process for removing vitreous enamel from a metallic base which comprises rendering the enamel porous by treating the article with an acid solution and then loosening the enamel by an alkaline solution.

2. The herein described process for removing vitreous enamel from a metallic base which comprises first treating the articles with a hydrochloric acid solution of about 10% strength heated to about 160°, and then with a sodium hydroxid solution of about 25% strength heated to about 160°.

RAYMOND D. COOKE.